

Havtil's experiences with the use of HF tools in investigations

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What is Havtil?

- Government supervisory agency subordinate to the Ministry of Energy (ED)
- Regulatory authority for safety, the working environment, emergency preparedness and security
- Areas of responsibility
 - petroleum operations offshore and at land plants
 - renewable energy production offshore (offshore wind power)
 - CO₂ transport and storage
 - mineral operations on the seabed
- About 180 employees

Goal

Big drive for better follow-up

Our follow-up of serious incidents should contribute to a world-leading safety level in the petroleum industry

Duration

2022 - 2025

Develop HF tools in investigations



The objective of Havtil was:

Develop tools (such as checklists, methods, taxsonomi) to strengthen human factors(HF) in our investigations

HF toll(s) will be an integral part of Havtil's existing investigation method, potentially an updated investigation method

Sintef was tasked with developing the HF tool in collaboration with HAVTIL

Deliveries from SINTEF

Literature review

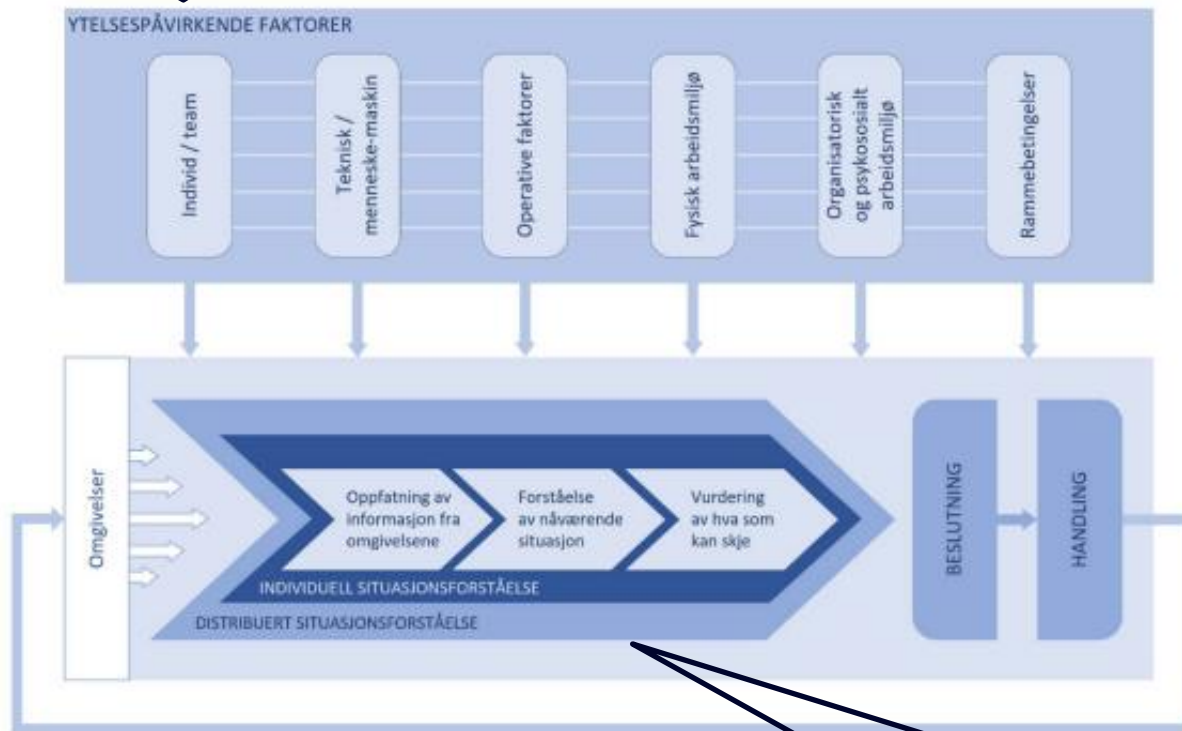
Model with guidance

Toolbox



Human Factor tool for investigations

Performance influencing factors are factors that can affect behavior. Examples are workload, time pressure, competence, communication, and deficiencies in machines and equipment. One goal of the investigation is to identify which performance influencing factors affected the behavior and how they influenced it.



intended to contribute to a **shared understanding** of human factors within the investigation team

The goal is **not** to contribute to finding who is at fault

The goal is to find out why people acted as they did

The guide is not an interview guide, but... Includes possible interview questions for SA

Can be used as a basis for creating interview guides

"A toolbox" that support the guide

To explain why people acted as they did, it is important to examine how those involved understood the situation. Many work operations take place in an environment where staff are not co-located, where work is carried out across different companies, or where there is a particular reliance on information from technical systems. It is therefore also important to investigate SA shared by several involved actors

*Partly based on modell by Endsley, 1995

Examples

- Valaris - investigation of incident with BOP ram door on Rowan Stavanger
- Equinor/Beerenberg – Mongstad – person fell from scaffolding

Example 1: investigation of incident with BOP ram door on Rowan Stavanger

Technical / HMI

- The lock mechanism gave no clear indication that the anti-rotation bar was in the correct position and had no fail safe modus.
- The system was not transparent and contributed little to understand the necessary actions for correctly assembling the lock
- The system did not provide essential info for good decision-making.

organizational / psykososial

- Manuel job that required 2 people , but completed the work alone
- Hired and largely left alone
- Lack of updated procedures for maintenance of NXT BOP

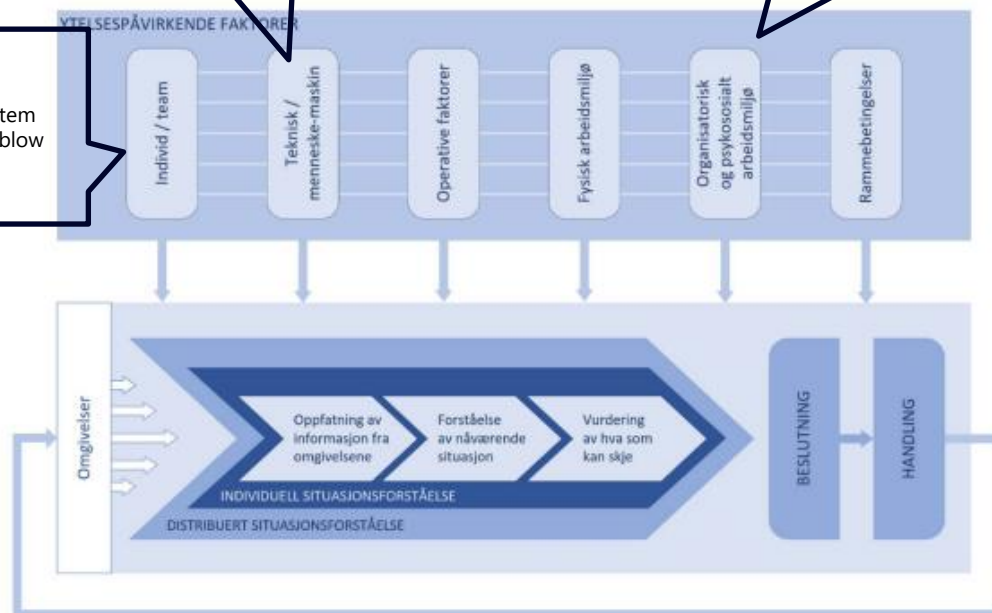
Design of the lock mechanism – human-machine interface

- Described in the chapter on underlying causes
- Deviation:
 - *The locking mechanism on the BOP valve doors was not designed in a way that reduces the risk of errors*
- **What factors influenced the decisions and actions taken during installation of the blowout preventer (BOP) valve doors?**

It emphasizes that the information provided should be understood in relation to the context of the report

Individual

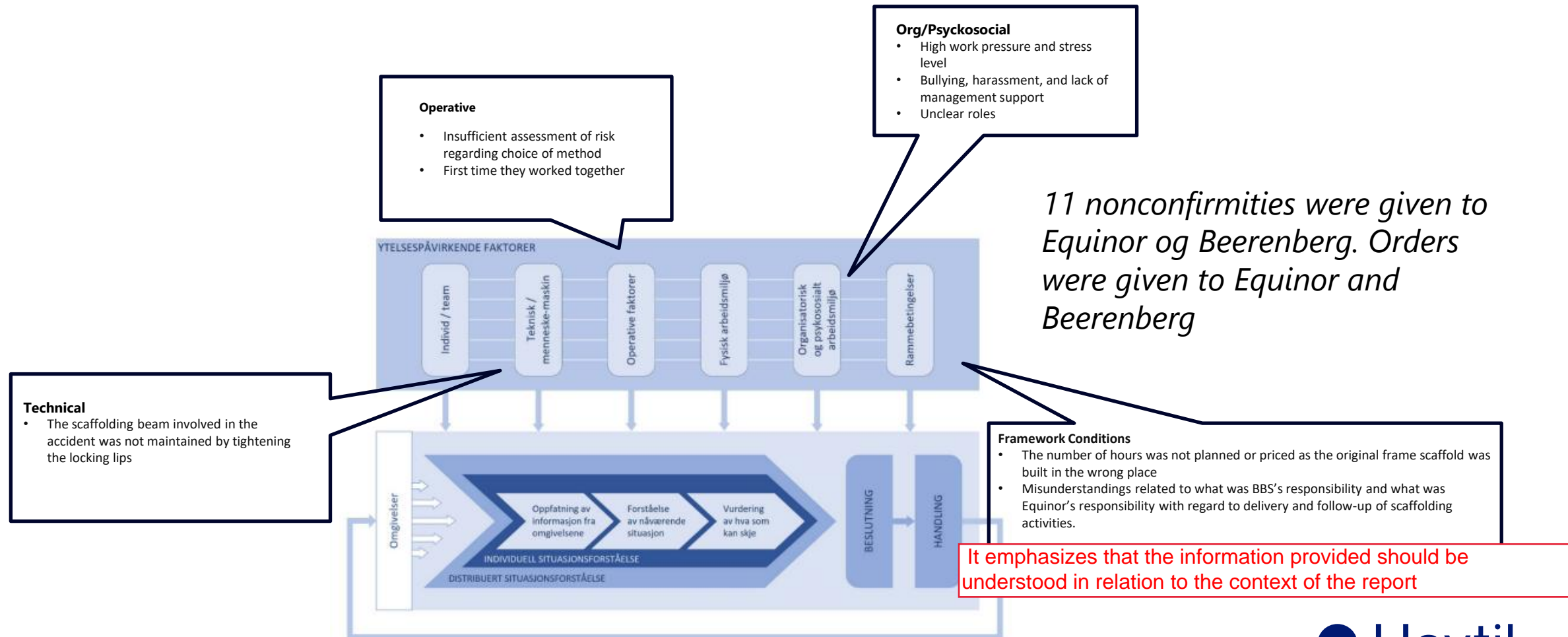
No experience with the locking system not received training in NXT BOP- blow out preventor



*Partly based on modell by Endsley, 1995

Link to report on Havtil.no
https://www.havtil.no/contentassets/86362f14fcc940acaef15796dcef3a74/rapport-etter-gransking-av-hendelse-pa-rowan-stavanger_rev..pdf

Example 2: Equinor/Beerenberg – Mongstad – investigation of incident where a person fell 23.5 metres from scaffolding



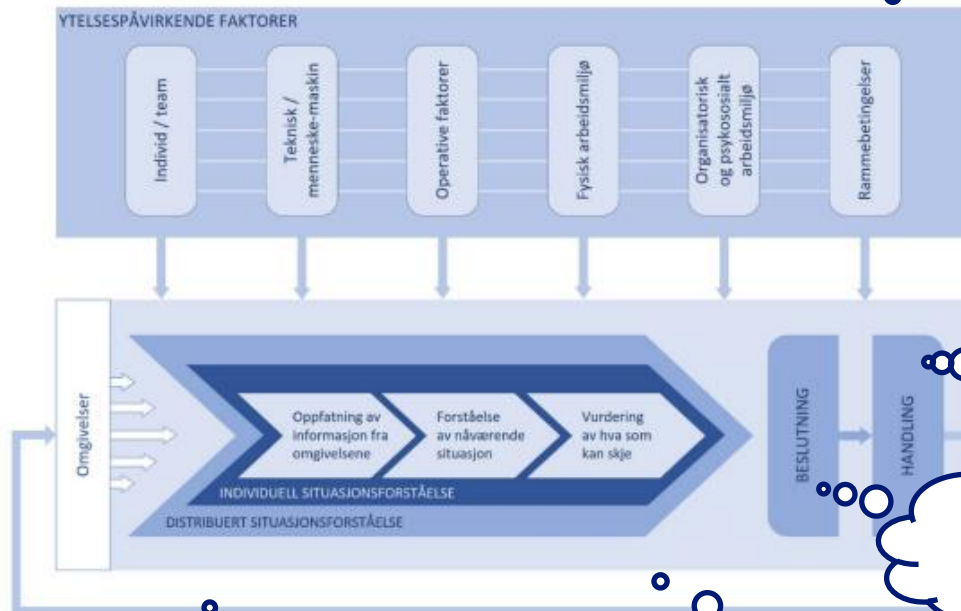
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Link to report på [Havtil.no](https://www.havtil.no)

Experiences with the use of HF tools

Reminded me to ask questions about why, and not just what happened

The modell helped me to keep an overview



Requires guidance

One starts here

Or here

Distributed SA was challenging

Modellen

- Visual aid/tool
 - Contribute to a common understanding of human factor by the investigation team (goal 1)
- Tools/guide
 - SA interview questions
 - Other (criop, HFAC....)

Early phase
Analysis
Report
Learning from accidents

What conditions influenced the decisions and actions?

**Partly based on modell by Endsley, 1995*

What now? Further development of Havtil's investigations

Course in Hf tools

Piloting of the tool in investigations

Work package 1 - Accident perspective and investigation methods
Work package 2 – Pilot

Evaluate and further develop the Hf tool

Training



Safetyforum, 2019

Anbefalinger

Selskapene og myndighetene bør forbedre sine fremgangsmåter for gransking og læring ved å gjennomføre følgende anbefalinger:

- Anbefaling 1: Granskingsteamet bør ha kompetanse om human factors (HF), organisatoriske forhold og virksomhetsstyring på lik linje med teknisk kompetanse.
- Anbefaling 2: Selskapene og myndighetene bør også bruke granskingsmetoder der spørsmålet for granskingen er 'hvorfor ga det mening å handle som de gjorde?' i stedet for 'hva gjorde de feil?'

Recommendation 1: HF competence in investigations

Recommendation 2: Investigation method where the question “why did it make sense to act as they did” instead of “what they did wrong”



Don't forget the working environment

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Havtil Norwegian Ocean
Industry Authority